

Thomas J. P. Dr J J Woodward U.S.A
Washington Md

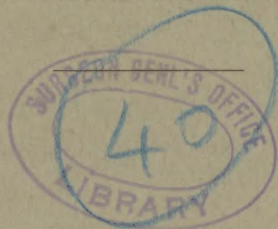
A CASE
OF
EXOPHTHALMIC GOITRE.

BY

J. P. THOMAS, M. D.,

PEMBROKE, KY.

FROM THE NOVEMBER NO. RICHMOND AND LOUISVILLE MEDICAL JOURNAL.



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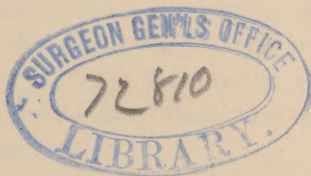
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EXOPHTHALMIC GOITRE.

Taking the literature of this disease as a criterion by which to judge of its frequency, it is plainly a very rare affection, as there are, comparatively, very few writers upon the subject, and they devote but a very limited space to its consideration; in fact, there seems to be little known in regard to this, one of the most singular combinations of disease of which we have any knowledge. It is really triplex in character, there being three affections in one.

As to the pathology and morbid anatomy of "Basedow's disease," it is almost a sealed book to the Profession, as far as I have been able to judge, from the literature on this subject. There seems to have been very few post-mortems, and these give so far only negative results, and contradictory in character; at least such are my conclusions after a careful and patient investigation of all the literature within my reach.

The anatomical changes, as reported by different observers, are unsatisfactory, on account of their diversity and lack of uniformity; no two agreeing in this respect, and specially in reference to the condition of the heart, which is evidently the principal seat, if not the origin of the other two diseased conditions; more than one observer consulted, asserting from careful auscultation that there is no organic disease of this organ, that all the cardiac phenomena are purely functional. This statement may be correct, and no doubt it is, *per se*, but it does not always continue so if the disease is prolonged. Another declares that there is nearly always valvular disease, and often hypertrophy of both sides; others state that the veins and arteries are only enlarged, etc.

Prof. J. F. Meigs, in a very clear and lucid clinic on this affection, attributes to psychological phenomena the cause, or rather causes, of this disease, at least in the six cases, of which he briefly gives the history, as falling under his observation

and professional care. In all except the last, he seems to attribute to mental anxiety, consequent upon domestic troubles, the symptoms resembling in this respect (in nearly all his cases) hysteria in some form, requiring the same moral treatment, etc. In this latter suggestion I agree with Dr. Meigs, but the moral management of this affection is not more imperatively demanded of us than in many others; especially those occurring in females. And just here I would state as the sum of my knowledge (which is very limited on this point), that I have never heard of but one case of true Basedow's disease in a male. In this as in all other diseases in which the nervous system becomes implicated, as Dr. Meigs remarks, "The mind should be kept as tranquil as possible." "Hope must be infused into the patient's mind by cheering encouragement, by pleasant society, by patient and continued assurances that time and treatment will *probably* overcome the evil." So it will perhaps, if, as was evidently the case in Dr. Meigs' cases, the central organ of the circulation does not become organically diseased; for this occurs in the majority of fully developed and *prolonged* cases. But Dr. Meigs, like his predecessors and successors, fails to give us much light on the pathology of the malady, except the hypothesis that there is some loss of power in the controlling influence of the vaso-motor nerves, allowing the heart to act with unusual force and frequency, and permitting the arteries of the neck to undergo, for the time being, a larger diastole than is their law in the healthy state.

All this, though true, is very indefinite and unsatisfactory. The question still stares us in the face, and calls for an answer. What produced this loss of controlling influence of the vaso-motor nerves? Not mental or "pathic heart" trouble alone, as the Doctor intimates. This may aggravate and intensify the disease (as no doubt it does), but it is not certainly the cause. Dr. Meigs' experience is as large if not larger than that of any American of whom I have any knowledge, and his lecture will well repay a careful reading. His treatment is not only rational and scientific, but embraces all the essentials that offer any hope for cure, in the present state of our knowledge of this strange and anomalous disease.

Dr. Meigs does not mention the galvanic current from which, as my experience teaches me, there is more remedial power than in any other one remedy. He lays great stress on confinement to bed, but this is contrary to the views of many other able clinicians, and among the number one of the most practical of this continent, Prof. N. S. Davis, of Chicago. His lecture will be found in the "Philadelphia Medical Times" of 1873.

I do not expect to be more fortunate in dispelling the darkness that envelops the pathology of this affection than have been my *more able* predecessors; for this would be presumption in one whose whole experience and observation are embraced in a single case; but notwithstanding this limited experience, I will not hesitate to present the conclusions at which I have arrived, after a careful study of this case for six years before death terminated the patient's sufferings, and my anxious solicitude; it being in the person of a personal friend. This fact, and the rarity of the disease, of which a careful record was kept, together with the complications that presented themselves from time to time during the progress of the disease, made the case memorable to me. Of these symptoms, there were several to interest the medical mind, if I had but the descriptive power to portray them with that sufficient clearness necessary to a proper appreciation of each.

The priority of the discovery of the peculiar association of symptoms, observed in this affection, is claimed alike, I believe, both by Graves, of Dublin, and Basedow, of Merseburg, Germany; to whom the credit properly belongs, I am unable to say, but from the few authorities consulted, I am inclined to the opinion that it is due the German. Oppölzer claims it for Basedow, but he himself is a German; for which due allowance will be made.

The malady consists, essentially, of three distinct affections, unquestionably connected, invariably associated, and accompanying each other, sooner or later; embracing exophthalmus, bronchocele or goitre, and cardiopalmus.

There is, of course, a cause for this peculiar combination of diseases, as there are causes for all other morbid actions in the organism. From the statements of the few observers consulted

(with their recorded experience) and from my own observation of this unique case, I am convinced that this combination of diseases proceeds from a single cause.

"At first," says Oppölzer "there were no important changes in the heart or large blood vessels found, or at least observed and recorded, until Dr. Stokes discovered the vessels to be enlarged and very tortuous." He says that some writers have observed the left ventricle slightly dilated and hypertrophied; and that valvular incompetency has been noticed in many cases; but the alterations in the circulatory apparatus have been regarded as accidental complications, and not properly connected with (or necessarily the result of) the disease; because in other cases, or post-mortems, none of these lesions were noticed; and for the reason only that death resulted from some undiscovered complication, before the disease reached this point of degeneration. I agree with this observer that the exophthalmus proceeds from a hyperplasia of the cellular and fatty tissue of the posterior orbital surface, because this is evidently the cause of the prominence of the eyeball; the dilatation of the blood vessels behind the bulb, causing increased nourishment, and, as it were, an increased growth of fatty tissue in this locality; and because, from a careful observation of the disease in its entire course, there are no phenomena observable by which this protrusion of the ball can be attributed to a flow of blood to the brain, or to pressure on the trachea by the thyroid; producing thus a "popping" of the eyes, as in strangulation by hanging. On the contrary, the feeling imparted to the fingers or palm of the hand pressed against the lid so as to force the balls backwards is that of a soft yielding cushion of cellular tissue; and post-mortems have demonstrated this to be the true condition of the parts.

One writer (Taylor) lays great stress on the dilatation of the blood vessels behind the bulb, and seems to consider the protrusion as due somewhat to a sort of anastomosis of the blood vessels in this locality, although he speaks of the hyperæmia of the tissues.

All writers, I believe, agree in the statement that the blood vessels of the cervical region are invariably dilated and tumid;

some contending that this condition of the arteries and veins is associated with the degeneration of the thyroid gland, and is the cause of its pulsations. The blood vessels in this locality are generally enlarged and swollen, or were in the case treated by me.

I can not, however, agree with the reviewer of Oppölzer's paper, that this enlargement is a true hypertrophy of the vessels involved, but that it is a dilatation produced by increased action of the heart, together with a partial obstruction to the free passage of blood through these vessels, pressed upon as these are by the enlarged thyroid. In regard to the symptoms noticed as attendant on this disease, there seems to be equally much contrariety of opinion; as much as is exhibited in regard to its pathology. This is especially true in reference to its initiatory stage. Oppölzer is of the opinion that the majority of cases are revealed, first by a troublesome palpitation of the heart, and that the other phenomena come on at a later period, the development of the thyroid being the first in order, and lastly, the exophthalmus. This agrees somewhat with the history of the case here reported, yet other observers state that the goitre is the first appreciable symptom; one writer reports three cases, in which this symptom was first observed. Others, and Oppölzer among these, in a few of his cases, noticed a reversal of this order of development. The commencement was of a nervous character only, and in some of the cases the hysterical phenomena preceded the disease by many weeks. The thyroid enlargement, as stated by some, was usually soft, but a few report it as hard and unyielding to pressure. The bruit, I believe, is admitted by all. As to the lateral extension of the tumor, in contradistinction to other enlargements of the gland being the rule, all agree. Oppölzer says all the lobes take part in the enlargement, but that the lateral are more pronounced.

In some of the cases reported, there was excessive enlargement of the right lobe only; in others it was the left. The majority of writers speak of the extent of the enlargement as moderate, in comparison with uncomplicated bronchocele. The exophthalmus has been, in some few cases, observed only in one eye during the whole progress of the disease; in others, begin-

ning in one, it would, as the disease advanced, extend to the other.

There is a case reported by Praël, in which the exophthalmus was for a long time unilateral, but subsequently it affected both eyes.

The ophthalmoscope has, so far as my knowledge extends, or so far as any of the authors consulted indicate, revealed no structural changes within the eye; some few mention some temporary deviations in vision. Scoch reported a case in which there was double vision and amblyopia.

There are various slight anomalies mentioned concerning the internal structures of the eye; in many cases there was marked dilatation of the pupils. A case has been reported by Gildermeister, in which there was mydriasis of both eyes, but this was of short duration, disappearing during the course of the affection. Others have discovered a peculiar condition of the lids, in Basedow's disease, in which they variously failed to respond to the movements of the bulb at the commencement and termination of every glance of the eye. Graefe considers this as diagnostic. I suppose this failure of the lids to adapt their movements to those of the bulb was only the result of their insufficiency to cover the eyeball, its condition impeding their movements. Graefe, on ophthalmoscopic examination, observed considerable enlargement of the retinal veins, which he says were broader and more tortuous than in their normal condition.

I find that no writer mentions the appearance during any stage of the disease of a white ring encircling the cornea; the "arcus senilis." Dr. Bartholow is the only one who alludes to it, and he says his cases did not manifest it.

A great many neurotic phenomena are recorded by observers. Basedow mentions some singular psychical and hysterical symptoms, with irritability of temper, and at times great mental excitement. In some of his cases, he noticed an abnormal condition, which manifested itself in the frequency and haste of the movements of the limbs, facial expression, etc., with quick speech.

Dr. Cheadle, in a communication to the Harveian Society in

June, 1869, gives some clinical observations in eight cases reported by him; six of which, however, only exhibited the leading features of the disease proper. In one there was no goitre; in another there was no exophthalmus. So we will exclude those, as they do not seem to have been cases of Basedow's disease. He is the only observer that I have read who reports a case occurring in the male (and only one of his six cases occurred in the male), but he says this case was fully developed and to a marked degree. No cause, observes this writer, could be discovered for the disease in this case. He attributes the other cases as in some way connected with disorders of menstruation. Five of his cases were but slightly anæmic; of the females, two were robust and full-blooded. The male was also robust, with no emaciation. In all his cases palpitation was the first symptom; rapid and forcible action of the heart in every case; pulse never under 100, and often as high as 144. He endeavored to discover some lesion of the cervical sympathetic by noting the difference in temperature of the two sides of the face, but could discover no appreciable difference, except in one case. In none of his cases could organic cardiac disease be made out. I doubt his diagnosis in the male. In this case the goitre rapidly disappeared, and other symptoms abated under the constant use of iodine externally and internally, and the cure was speedy. The result of treatment in the cases of the females are not reported.

This writer seems to consider that the hypertrophy of the orbital cushions and enlargement of the thyroid are explainable as the result of hyperæmia from increased cardiac action, but he adds that "there must be a nerve stimulus at the bottom that sets the heart going at such an unwonted pace. That the excessive cardiac impulse is the key to the series of phenomena, but that it was necessary to seek the nerve source of this increased action of the heart and circulation."

Though there had been some morbid changes discovered in the cervical sympathetic on post-mortem examination in a number of cases, these changes were quite inadequate to explain all the phenomena. He thought the sympathetic system was in some way involved or implicated largely in the production of the malady.

Dr. Morel McKenzie reported before the Clinical Society of London, in 1868, four cases of this disease, all of which were females. In all of his cases, swelling of the thyroid was the first symptom; all were young women, but in all the menstrual functions were performed regularly. One case only was benefited by xv. m. tinct. digitalis thrice daily. One proved fatal early. Others still under treatment; no improvement from treatment when reported. In the post-mortem of Dr. McKenzie's fatal case, the pathological appearances are thus given: "The substance of the cerebral tissue was not unnaturally soft, nor were there any clots or embolisms anywhere; but the corpora quadrigemina and medulla oblongata, particularly its posterior part, were very soft. A minute examination displayed the usual appearance of common softening."

The patient, five days before death, had maniacal fits, and just before death a mild convulsion, both of which were probably produced by the sanguineous fluid which was found (to the extent of a drachm or two) in each lateral ventricle, and by the softening of the medulla oblongata. The heart seems to have been healthy, except some atheroma of the mitral and aortic valves, as well as some thinness of the latter, and the coats of the aorta and pulmonary arteries. The thyroid was much enlarged, and its right lobe passed around and behind the œsophagus and came in contact with the spinal column. Its structure showed hypertrophy of the cellular elements. The inferior thyroid arteries were much enlarged.

Dr. C. Handfield Jones reported a case before the Royal Medical and Chirurgical Society in 1860, which he termed "Proptosis with Goitre and Palpitations, etc." This case is chiefly interesting as giving the views of so high an authority as Dr. C. J. B. Williams, and because these differ so far from those of other observers, especially as to the results of treatment. He said he "knew no class of cases more curious or more peculiar in their prominent symptoms than the one referred to by Dr. Jones in his report, nor any in which the effects of treatment were so striking." An experience contrary to that of most authors. He said that "the pathology of such cases had at *one time puzzled* him much," and I must say he failed to unravel

the puzzle to the satisfaction of any one but himself. He said "on account of the peculiar combination of symptoms, the prominent and throbbing vessels of the forehead, head, neck, and face, I consider the pathological character of the disease to consist in a *kind of aneurismal varix of the thyroid*. And that enlargement of the vessels would account for the prominence of the eyes, which were probably in some cases rendered more prominent by effusion into the orbit. That the whole cerebral *circulation* was in the same state of *enlargement*, producing excitement and other symptoms of disturbance of the brain. This state depending on diminution of nerve power, and not on increase of nerve power, explained the *wonderful action* of tonics in this disease. He had treated several cases, all females, and in *all* his cases the disease yielded happily and promptly to astringent tonics, such as the sulphate of iron with excess of sulphuric acid. A very bad case recovered in a few days under this treatment."

This is very high authority, and comes from a very distinguished clinician, but his experience in the treatment of this disease is greatly at variance with that of the majority of observers, his results being much better than those of any other reporter using any and every form of treatment.

Professor Bartholow read a very excellent paper on Exophthalmic Goitre before the Section on Practical Medicine at the meeting of the American Medical Association in 1875. But he is rather contradictory, when he says in the commencement of his paper "that no case of Graves' disease can be considered complete, without the presence of three characteristic symptoms—irregular and rapid action of the heart, enlargement of the thyroid and exophthalmus;" for a few sentences further on he says, "but many cases are met with in which but one or two of the typical symptoms are present." Again, in the second paragraph, he says: "It is equally certain that many cases of so-called goitre are really examples of Graves' disease," the enlargement of the thyroid only attracting attention. This may be so, but the other symptoms must have been extremely trivial, or the patient and physician very deficient in observation.

I have treated several cases of bronchocele with palpitations, incident, as I thought at the time, to anæmia; there were also anæmic murmurs, but no exophthalmus. I did not then, nor do I now, consider these cases as cases of genuine Basedow's disease. Possibly the alterative and tonic treatment pursued may have arrested further development. Dr. Bartholow is dissatisfied with the term "exophthalmic goitre," as failing to express always the true pathological condition present. This is because he does not consider it necessary to have the three phenomena present to constitute the affection proper. But if we require or insist upon the development or appearance of the three recognized as characteristic symptoms to complete the diagnosis, there can be no name so admirable, so expressive of the whole group of phenomena.

I believe with Drs. Meigs and Bartholow that there is evidently some lesion of the sympathetic system of nerves (as well as the spinal accessory); but I believe also with Virchow that there is a cause for this lesion, and that the central lesion is strumous in character, which seems to be proven by the results of a tonic and alterative treatment, as reported by various observers. I fully agree with Dr. Bartholow (from my own experience with the remedy) as to the beneficial results to be expected from the constant galvanic current; but I do not think that it should be relied on to the exclusion of other remedies, such as digitalis, iron, and the hypophosphites and cod-liver oil.

Dr. Ochterlony, of Louisville, Ky., has an excellent and able paper on Basedow's disease, with a report of several cases, according to my recollection, but as that number of the "Richmond and Louisville Medical Journal" containing it has been misplaced, I can not give the Doctor's views on the pathology of the affection.

Dr. Chisolm, of Baltimore, reports an incomplete case of Graves' disease, in which there are some points of special interest, one of which is, as the author remarks, its divergence from the assumed type. The persons affected, says Dr. Chisolm, "are usually young chlorotic females with irregular or suppressed menstruation." This is not necessarily so, as there are

many cases not chlorotic, and in whose cases there has never been any derangement of the menstrual functions, while some have been robust and full of red blood. His own case belonged to the latter class. This may have been an undeveloped case of Graves' disease, but in my opinion it was not a case of exophthalmic goitre proper, but one of simple bronchocele, with probably a few unusual symptoms. No treatment is given, nor the result nor termination of the case.

I am convinced that there are many cases of simple goitre treated as exophthalmic, and thus cures are increased. But as the principal object of this paper is to present the history of a very peculiar case of this very peculiar disease, with several complications and psychological phenomena (as noted and now presented by request of several medical friends), I will, with this hasty résumé of a portion of the literature of the affection, endeavor to present it; but I do so somewhat in detail, with the hope that it may, to some extent, awaken more interest in what I consider a very obscure and most singular disease; and with the additional hope that it may be the humble means of stimulating more able investigation into its true pathology and causes. Virchow's cellular pathology will have to be studied in this connection more fully; and Schwan's doctrine; and Bichat's; and "Heitzman's plasma doctrine"; or, as Dr. Elsberg proposes to name it, "bioplasm doctrine." The careful study of this doctrine promises much for pathological research, and it may account for the hypertrophy of the thyroid, and probably the increase of plasmic material behind the orbit, as well as the increase of the heart in well-developed and long-continued cases of exophthalmic goitre. The study and application of this doctrine promise to enable us to recognize some diseases by the microscopic examination of a few colorless blood corpuscles before the disease itself is developed, thereby enabling us to prevent rather than cure disease, which is much more desirable. I may go further in my expectation, and hope it may reveal to us the nature of the deposit or whatever morbid agent may be the cause of the lesion of the ganglionic or sympathetic system. I am very much interested in the study of this doctrine of Heitzman, which is as good a name for it as protoplasm or bioplasm;

for, as observed by Dr. M. B. Wright, in a note, or rather correction, to a very able but plainly expressed article on Cephalic version in the "American Practitioner":

"I have no room for the newly-coined phrases with which the Profession is so heavily burdened. Indeed, I begin to fear that our profession will be, ere long, concealed under the rubbish of an unknown tongue. Even now the thoughts of the later generation are conveyed to the fathers in a sort of pantomime."

It is to be hoped that this microscopic study of the living and healthy tissues will be diligently applied to a like study of all diseased tissues, and thereby possibly enable us to note not only the changes that take place by diseased action in general, but the peculiar special change occurring in each separate disease, as well as the character of all morbid deposits or agents producing each disease.

Miss Annie W., aged seventeen years and six months; *very* light hair; blue eyes; full habit; well developed for her age; weight 135 pounds; temperament nervo-lymphatic; complexion blonde; rather cachectic in appearance, but lips red and a slight rose tinge on cheeks. In good circumstances, financially; a petted child of doting parents, and naturally of a happy disposition. Had been irregular in menstrual functions since puberty; some dysmenorrhœa, for which she had received treatment from time to time; was an habitual "snuff-dipper" since the age of eleven years. Very imprudent as to the care of her health; was often very nervous from the effects of snuff, the villainous and pernicious habit being common among the young girls in the neighborhood. Had been attending boarding-school for the past eight months, when her father was informed by the Principal of the illness of his daughter. She was immediately brought home, and I was sent for to see her, which I did on the 5th of February, 1867, at night. Found the patient with some fever, complaining of sore throat; said she was taken with a chill three days previously to my visit, after playing snow-ball and eating a quantity of snow, when her throat became very painful, with constant headache; had no chill since. On examination, I found the fauces much inflamed, but no enlargement of tonsils or ulceration; patient very nervous with slight

palpitation. Prescribed comp. cathartic pills, with a gargle of chlo. potassa, and turpentine externally, twenty grains of quinine in four doses, one every three hours, after which no further treatment was considered necessary.

On the 7th of February, two days after first visit, I was again summoned to see her. I found distinct enlargement of both lateral lobes of thyroid gland with increased palpitation, and pulse 110. The palpitations and nervousness I attributed to the use of tobacco, and pronounced the case goitre. The gland was painted with tincture of iodine. The throat symptoms had disappeared. Bromide potassa, with the iodine, thrice daily, was ordered; tinc. digitalis, 10 drops, twice per day. The thyroid continued to increase notwithstanding the continued application of iodine up to March 4th, when she was attacked with acute bronchitis, with considerable dyspnoea.

On the tenth day after the supervention of bronchitis, an undue prominence of the eyes was, for the first time, noticed. The balls of both eyes were distinctly protruding; no emaciation; palpitations more frequent; increase in both lateral lobes of the thyroid, with perceptible prominence of the isthmus; suppression of menses for one period. Under tonics of sulphate of iron and sulphuric acid, with the addition of the following—

R_y—Decoct. Senega, ℥vj.;
Iod. Potassa, ℥j.;
Bro. Ammonia, ℥ss.;
Aqua, ℥xij.;
Tinc. Digitalis, ℥vj. M.

Sig. One teaspoonful ter die, with continued application to thyroid, she gradually improved, with a reduction in the bronchocele. No palpitations, except on exertion, for over two months, when the exophthalmus increased to such an extent as to render a closure of the eyelids impossible, yet there was apparently a continued decrease in the goitre. Menstruation was established at the end of the third month by the administration of tinc. antacrid. in doses of twenty-five drops thrice daily for fifteen days preceding a period. The bronchial complication persistent; cough at times distressing, notwithstand-

ing systematic treatment addressed specially to the lung affection. Only slight loss in flesh up to this time. May 20th, weight 125 pounds, but no permanent improvement in the course of the malady.

May 20th.—Considerable irritability of stomach for a few days without vomiting, when almost constant vomiting of bilious matter occurred, resisting all treatment, for about ten days, when it ceased. All medication, except an occasional hepatic, was omitted. The liver was perceptibly enlarged and tender on pressure. After cessation of the vomiting, the appetite returned. This, as should have been stated, was morbidly voracious, craving acids and the most indigestible aliments, with a diseased taste for chalk, slate-pencils, etc.

May 30th.—Eyes more prominent; pulse 140 and bounding; thyroid much smaller; considerable emaciation; weight 105 pounds; respiration hurried and panting; bruit distinct and thrilling; feet œdematous. She was placed on a pill of extract belladonna, $\frac{1}{4}$ gr.; sulph. iron, ij. grs.; sulph. quinine, ij. grs., ter die, with xv. m. tinct. digitalis twice daily, and daily seances with an ordinary two-cell battery applied over the sympathetic and to the pit of stomach. Occasionally one pole was applied to the tumor.

June 10th.—Pulse 130. After this time and under this treatment the pulse decreased in frequency, and the goitre diminished in size, and by the first of August she could close the lids almost naturally.

August 20th.—Pulse 96; heart sounds greatly lessened; eyes more natural; goitre not more than half the former size; appetite more healthy; anæmic condition improving; gaining flesh rapidly; cough less annoying; expectoration nil; can take moderate exercise without dyspnœa, but if she ascends the stairs produces extreme panting with suffocative respiration. With intermissions of a week in the application of the galvanic current and alterations of the prescription from one preparation of iron to another, according to condition of stomach, with a continued administration of some one of the bromides or iodides, with valerian, etc., and with proper restrictions in diet, as far as practicable with a self-willed patient, and moderate exercise

in the open air, she continued slowly to improve up to February 14, 1868. Before this period she had grown tired of the galvanic current, which had been applied according to my instructions by a member of the family. About this time, from some unacknowledged cause, probably from excesses in diet and exposure to cold, being passionately fond of fishing (would sit for hours on the bank of a creek or pond, often with her feet in the water, and fish), she grew suddenly and rapidly worse, all the symptoms reappearing with, if possible, more intensity. The thyroid increased until each lateral lobe closely approximated the size of an orange, though more flattened in form. The pulse was often beyond my ability to enumerate, reaching beyond 160. Heart jarring the whole thorax, and distinctly audible in any part of the room; pulsations in thyroid decidedly aneurismal; bruit loud and thrilling to touch; eyes simply frightful by starting and protruding as if they would burst from the orbital cavities. For the first time there was persistent and stubborn diarrhœa, resisting for a considerable time all treatment; cough frequent with muco-purulent expectoration; emaciation rapid. Area of cardiac dullness marked, especially on the left side; some mitral regurgitation; anæmic blowing of the carotids; œdema of feet and ankles; urine albuminous by nitric acid test.

March 4th.—Had continued very much in this condition, when a half circle of a white line was first observed on the upper border of the cornea, which grew from day to day more distinct, and continued to extend around the cornea. In a week it had entirely surrounded the cornea, and was a distinct white circle about a line in width; was as distinct in one eye as the other, encircling the cornea of both eyes, and this never afterwards entirely disappeared. Extreme nervousness continually, and at times hysterical symptoms, as had been the case from the beginning of the attack. But on this renewed onset of the disease, there were developed a series of psychological phenomena that I have not seen noticed by any writer on this affection. Phenomena that amount to the marvellous, and which I should hesitate to relate on this account, if my statement could not be vouched for by living witnesses. First, from hav-

ing been one of the most truthful and moral, and as little given to gossip as any of her sex, she became possessed with the demon of untruthfulness, constantly fabricating some marvelous story, of which she was always either one of the principal actors or an eye witness, after the style of Gulliver; often telling the most slanderous stories on her neighbors, and even her kinsfolk; sometimes reporting to me the alleged ill treatment of her parents, when there never existed parents more indulgent and affectionate. They were, I may say, foolishly indulgent to their children, and yet she would relate to me, always in a whisper, how her mother had grossly maltreated her, and that her father had, on several occasions, "slapped her down"; and on one occasion "had actually knocked her down stairs." By way of illustrating the many marvellous stories she would relate to her visitors, as well as her physician, I will give one in her own words. She had a very lovely and amiable cousin, a young lady remarkable for her many good qualities of head and heart. For a long time, without cause, the patient seemed to entertain for her cousin an uncontrollable dislike, and as if in a sort of spirit of revenge, she called me to her bedside one day, and said she desired to tell me of a sight she witnessed the other day. "I was down at the pond fishing, with my shoes and stockings off and my feet in the water (not an unusual thing for her to do), when, on looking to the opposite side of the pond, I saw my cousin fishing also. After a while a big black negro man seven feet high came out of the woods and approached her, and at once commenced hugging and kissing her, doing so repeatedly, and she offered no resistance, and did not seem to object to his embraces. But after a while he espied me, and instead of going around the water, he waded in, coming directly to where I was sitting. When he had reached about the middle of the pond, I became frightened and ran as fast as I could to the house, and my heart has been swelling and has been ready to burst ever since."

The pond alluded to was in the centre of a very large field, and no woods near, and her cousin was absent from the neighborhood at the time on a visit to an aunt in a neighboring town some fifteen miles distant, and yet she seemed to believe

fully that what she was relating was an actual occurrence; yet she was rational in all else. She again improved, with a tonic and sustaining treatment, taking several bottles of the glycerole of hypophosphites, but this character of delusions or hallucinations possessed her mind for five or six months; gradually she dropped them, and finally when reminded of the wonderful stories of which she had been the author, she refused to believe that she had ever told them, and especially the one concerning her cousin, of whom she was really very fond.

She was during *this* period even perfectly rational on all other subjects, except this special propensity for slandering her friends, and for the marvellous. Meigs, Bartholow, and others seem to attribute the exciting cause to domestic or financial trouble. In this case there was no disappointment in matters of the heart, and no cause of a mental character to produce or excite the disease.

There was evidently a strumous diathesis, and with the experience of this as the only fully-developed case of Basedow's disease, I am inclined to the opinion, as before stated, that Virchow's theory is the most probable and plausible; that it is a struma. May not a strumous deposit in the ganglia or nerve centres of the sympathetic system produce the lesions that seem to be evidently present in the vaso-motor nerves, causing a sort of paralysis of said centres, and consequently (by their want of influence) the cardiac disturbance, etc. But, as remarked by Dr. Jewell, "the average ignorance of the Profession is concentrated on the nervous system," and I may add the cause for every departure from health is bound to originate in this much accused portion of the organism.

From March to November, she continued to improve, with tonics, electricity, cod-liver oil, hypophosphites, etc., with occasional treatment addressed to the kidneys, which often were deranged in action. At times they were inactive, at other times active, amounting frequently to diabetes insipidus; but no sugar could be detected in the urine at any time. On several occasions there was dropsy of the lower extremities, extending, on one occasion, to both labia and continuing for three or four weeks, but invariably disappearing on exhibition for a short time

of some tonic diuretic. Though not properly scientific, yet among this class of diuretics I have found none equal to the following :

R \bar{y} —Hydrochloric Acid, \mathfrak{z} jss.;
 Potass. Nitras, \mathfrak{z} v.;
 Sulph. Quinia, \mathfrak{z} jss.;
 Tinct. Canth., \mathfrak{z} ij.;
 Ol. Teribinth, \mathfrak{z} vj.;
 Ol. Pip. Nig., Mxxx.;
 Brandy Oij. M.

On November 20th I was informed by her mother that there was great swelling of both labia. On examination found them enormously cedematous; feet and legs dropsical. With the above prescriptions, this effusion rapidly disappeared, after which her improvement in general health was steady; gaining flesh; reduction in thyroid, eyes not so prominent, but cardiac dullness increasing, palpitations more frequent on the least exertion; heart's action so forcible as to jar the whole thorax; mitral murmurs distinct. Digitalis and aconite were added; given alternately, with apparently beneficial effect; with this addition to the general treatment before indicated, notwithstanding the continued increase of cardiac dullness, the throbbing of carotids, and the noises in the ears (which latter were very annoying) her general health improved up to May 5, 1869, when after a horseback ride of twelve miles and some imprudence in diet, she was attacked with excessive diarrhœa and severe precordial pain (angina pectoris). Treatment, galvanic current; one pole over cervical sympathetic and pneumogastric; the other over heart; seance thirty minutes; when a belladonna plaster was applied over cardiac region; astringent and anodyne enema.

May 6th.—Circulation better; pulse only 110; complains still of precordial pain; but dull in comparison; nausea and vomiting, with dyspeptic symptoms; not much improvement in the diarrhœa; bismuth, tannin and carbohc acid.

May 8th.—Much better apparently, except constant and continued pain in region of the heart, which the plaster had failed to relieve. Blister applied and strict quiet enjoined. Hyster-

ical; afraid to be touched; said if any one touched her she would break all to pieces.

She was kept confined to bed for two months, when again the improvement was decided. Afterwards moderate exercise was allowed, and the foregoing treatment alternately employed; steady improvement was the result; even the heart's action decreased; the arc around the cornea faded. She continued to improve during the whole of this summer, 1869.

This "arcus senilis," Dr. George B. Wood's diagnostic of fatty heart, was a very prominent and persistent symptom in this case throughout its entire course, and really seemed to hold some relation to the other symptoms, as it would fade on improvement, and again become distinct on the aggravation of the malady.

Dr. Wood mentions this zone or arc as a valuable diagnostic sign in some cases of fatty degeneration of the cardiac walls, though as stated by him as early as 1858, it had been found to be a fatty degeneration of the cornea, *per se*.; but that Mr. Canton had observed it to be generally attended with some affection of the heart. My lamented friend and preceptor, Dr. E. B. Haskins, of Clarksville, Tennessee, as quoted by Dr. Wood, found only two cases in his observations of twelve cases of "arcus senilis" that offered any symptoms of organic disease of the heart.

Dr. Wood says: "In the very old, this affection of the cornea may be considered as a normal change in the tissues, incident to declining life; but in the young and middle-aged, it must be taken as indicating a morbid state of the system, such as also probably disposes to fatty degeneration elsewhere. Haskin's article in "American Journal Medical Sciences," N. S. XXV., 107.

I have observed, since the investigations of Haskins, ten cases of this circle around the cornea, in both old and young, and carefully examined each case for disease of the heart, and in only one case did I find any organic alteration of this organ. This was in an old negress, aged seventy-eight, with general dropsy. I diagnosed fatty degeneration, being satisfied without this symptom (or sign) that the heart was the cause of the

dropsy. She died suddenly, and the post-mortem revealed a heart enormously enlarged and almost entirely fat, with athetoma of the aorta. After this seeming digression, I would state, by way of apology, that I make this quotation from an old author, because I am inclined to the opinion that the fatty cushion behind the orbit is due to a general tendency in this disease to fatty degeneration, obstructing probably the coronary artery, and possibly depositing some morbid material in the ganglionic nerve centres, notwithstanding the almost constant anæmia attending cases of this affection.

Treatment continued during the summer and fall, with occasional intermissions in medication for a month or more. Thyroid remaining stationary in spite of the introduction of the constant galvanic current after Neftel's plan, by attaching a sharp needle to each electrode and puncturing the tumor, with the application of iodoform ointment, iron, and iodoform internally for months together; pulse ranging from 100 to 140; respiration always quick; exophthalmus about the same, and was such a source of great trouble and annoyance to the patient that she would place compresses over the eyes with a bandage at night to enable her to cover the balls with the lids. Often, during the course of the disease, the latter would become very sore and inflamed along the tarsal borders, which sulph. of copper always benefited. She remained in this condition with occasional attacks of dyspepsia, suffering greatly with acidity of the stomach, unable to retain any nourishment, except uncooked eggs or some bland diet, with pepsin wine, nux vomica, and bismuth as aids to digestion. The latter often controlling the frequent attacks of diarrhœa better than any other remedy. Alternating in this way, losing flesh rapidly and in a short time regaining it, up to July, 1871. During this month dropsy was again developed as before; menstruation became obstructed; very nervous; pulse from 100 to 150; very fretful and peevish to all around her. She had been free from any special mental aberration for a long period. She now became hypochondriacal, in the same mental condition as before described, with the addition of a want of confidence in every one, seeming to suspect all about her as having some design upon her life.

This condition continued until about the 10th of September; all dyspeptic and bowel symptoms having disappeared; her appetite was good and bowels regular; hepatic functions sufficiently active. About this time she had an attack of intermittent fever, and owing to idiosyncrasy against quinine, was permitted to have five or six chills before they were arrested. But remarkable as it may appear, after the chills were arrested, she began to improve at once, and with a sort of combined anodyne, tonic, and alterative treatment consisting of iron, iodoform, digitalis, belladonna, strychnia, electricity, hypophosphites alternately and intermittingly (at times leaving off all medication), she improved in all respects, except the heart affection, which continued. When perfectly still and quiet, there seemed improvement here also. The mind improved and delusions left her. She was cheerful, and for the first time appeared to be contented with her condition; appetite good and healthy; no dropsical effusion; bowels regular; discharges healthy; thyroid remained stationary as to size; no change in exophthalmus; and as Dr. N. S. Davis remarked concerning one of his patients with Basedow's disease, she "approximated a cure." A sort of chronic condition was established. She visited her friends comparatively comfortable, with the exception of the dyspnœa. This panting was a constant attendant, as though she was overburdened with flesh. The heart beats were constantly audible to any one within a few feet of her.

May 26, 1872.—Another bronchial attack with pericardial pain. Blister over lungs and heart, with treatment addressed to bronchial affection; soon arrested both pain and bronchitis. From this time until the 6th of January, 1873, her general health continued comparatively good. At this time she was attacked with tonsillitis, with very marked increase in the thyroid. After recovery from the throat affection, she again had persistent diarrhœa. Goitre gradually increasing; the bruit more distinct than ever; cardiac dullness distinct in every direction, but more so at the left; respiration distressing, she often calling for more air, and requesting to be fanned; arcus senilis increased in width; chlorotic, anæmia, and emaciation extreme; bellows murmurs apparently in every valve of the

heart; pulse weak, but ranging from 110 to 160, and often beyond computation; thyroid pulsating with an expansive bound of great force and continuous; carotid pulsations far greater than the radial as to volume; an audible whizzing sound is at all times distinct in thyroid without the aid of a stethoscope or close proximity of the ear. No appetite; regurgitation of what she tries to eat; extreme acidity of stomach; diarrhœa resisting all treatment; no hysterical manifestations whatever; mind calm and collected. Says she "is willing and anxious to meet death." Profuse diuresis; urine clear and limpid; fœcal evacuations destitute of bile pigment; heart can be distinctly felt and heard to the left just below the clavicle and within two inches of the left axilla; valvular whistling very distinct. It is remarkable that none of the bromides, with even moderate doses of chloral, gave any relief or produced sleep, and that only a ten or twenty minutes' seance with the galvanic current produced quiet and procured rest.

She continued in this condition, with slight modification of the symptoms, for a day or two at a time, until April 2, 1873, when she died of insufficiency of the heart and general exhaustion. She was completely cyanotic. The exophthalmus remained after death.

Summary.—On the 3d day of February, 1867, this young lady was taken ill while at boarding-school. On the 5th I was called to see her; found only sore throat with some fever; rather nervous. Did not recognize the nature of the case; had not up to that time seen a case; had never read any description of the disease, except a short extract from Basedow's paper and Graves' account. Did not think a second visit necessary; but on being again summoned only two days later, the goitre was the first condition that attracted attention. Still considered the palpitation as due to depression of the nervous system from the use of tobacco. Considered the case as one of simple bronchocele.

Nearly a month elapsed before the exophthalmus was visible, or at least before it attracted the attention of the family or myself. There was suppression of the menses several times for one, two, or three periods during the course of the disease. The

gland often decreased in size, only to enlarge again, even under treatment. Occasionally the action of the heart improved. There were repeated attacks of bronchitis; none very unyielding to treatment however. Dyspepsia a prominent complication; diarrhœa another. There were three separate attacks of violent cardiac pain, which only a blister would relieve. Hysteria in almost every form. Very remarkable hallucinations; in this respect the psychological phenomena were very singular; and her long-continued relief from not only this form of mania, but from all hysterical symptoms before death should be noted. The long time that elapsed after the onset of the malady before the appearance of the corneal circle, and its fading on improvement, and increasing in distinctness on every increase of the other symptoms; also its persistence to the close, are all worthy of note. The pulse rate never under 90, no matter what the improvement. This was manifest throughout the disease; the pulse being often, I believe, up to 200. The exophthalmus remained nearly the same, and no recedence of the bulbs after death. Scrofulous sore eyelids apparent frequently in the course of the affection, and the remedy, sulph. cupri, being all that benefited them. The complication of dropsy, where there was no discoverable disease of the kidneys, was remarkable; the heart must have been the cause, and yet it disappeared a long time anterior to death, and did not return.

The effects of treatment almost nil. The hypophosphites had a more beneficial influence than any other internal medication. The constantly beneficial effects of electrical treatment point conclusively to innervation of the nervous system, and should be specially noted. The entire absence of any source of mental trouble in the young lady's domestic or social relations (as this seems to occupy a prominent position, as an exciting cause in the personal history of the majority of cases reported) should be noted. In this case there was evidently extreme hypertrophy of the heart, especially the left side, and probably fatty degeneration, as the systole became more feeble for some time before death.

It is astonishing that so few observers report any organic change in the heart. It seems reasonable to expect hypertro-

phy, at least in all cases, of long continuance, from overwork alone as a sufficient cause. The disease of this organ, when it exists, may be in this way coincident, and only the result of continued and prolonged excitement of the central organ of the circulation. It would appear rational to conclude that prolonged functional disease would finally result in organic change.

Since concluding this article, I have received a business letter from a medical friend and former pupil, in which he incidentally mentions his treatment of a case of this disease, and on account of the novel mode of treatment, I will give it in his own words. His success is equal to that of Dr. C. J. B. Williams; but I doubt the correctness of his diagnosis.

"I have *cured* a very severe case of exophthalmic goitre. The young lady seemed on the very threshold of death. She was examined by a score of M. D.'s, and she says every one pronounced it incurable, except myself. I put her on Lugol's solution, and used hypodermic injections of compound tincture of iodine, 15 drops at a time. I made only five injections, repeated every fifteen days."

So, judging from this, she was cured in seventy-five days. This is rapid, novel, and somewhat heroic treatment, but its results, if the case was not one of simple goitre, justifies the boldness exhibited. My case may have recovered but for the complications and the imprudence of the patient. The enforcement of hygienic treatment in her case was an impossibility.

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E. S. GAILLARD, M. D.,

168 Second Street, Louisville, Ky.